January, 1986 ESS 1250

DAIRY OUTLOOK: 1986-1990

Alternatives
Prices
Expenses
Receipts

by

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Part II of Materials Prepared by the
National Dairy Herd Buyout
Extension Program Committee

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National Dairy Herd Buyout Extension Program Committee

In November, 1985 a group of agricultural economists representing six land-grant universities informally organized the National Dairy Herd Buyout Extension Program Committee.

The milk production termination program, as the buyout program is formally called, became official policy when the President signed the Food Security Act of 1985 on December 21.

The purpose of this ad hoc committee effort is to formulate materials that could be widely used in cooperative extension programs designed to help dairy farmers, lenders, and other industry groups to better understand and make decisions relative to the new milk production termination program.

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Funding for this project has been provided in part by the Farm Foundation and the Cooperative Extension Services of the respective universities.

DAIRY FARM OUTLOOK: 1986 THROUGH 1990

The milk industry enters 1986 with a new dairy program in place. The reasons for the supply management (dairy herd buy-out) provisions of the new program are generally understood. The surplus of milk production over commercial demand in the 1981-1985 period has been at historically high levels, and mechanisms, in addition to simply lower price support levels, have been advanced in the legislation in order to resolve the surplus problem.

The dairy title in the Food Security Act of 1985 (signed by the President on December 23, 1985) carries specific dairy herd buy-out provisions and price support provisions effective from the time of signing through December 31, 1990. While the herd buy-out program is intended to operate for only 18 months during 1986 and 1987, there is discretionary authority for the Secretary to implement further supply management actions in 1988-1990. A schedule of support prices and optional support prices is explicitly set forth for the entire five-year period 1986-1990. It is the intent of this paper to project producer milk prices, production, and demand for the 1986 through 1990 period, given provisions of the 1985 legislation.

For all milk producers, a consistent perspective of the price-market situation for 1986-1990 is important. For those producers considering participation in the whole herd buy-out program, a relatively specific assumption regarding the milk price level and likely adjustments for all expenses and receipts for 1986-1990 is necessary in order to compute a buy-out bid. The following sections advance what we believe to be the on-coming dairy market price situation. However, recognizing that the

buy-out decision is also influenced by prospects for alternative farm enterprises, we first advance an evaluation of alternatives.

Evaluation of Alternatives

The attractiveness of the whole-herd buy-out (WHB) to dairy farmers depends in part on the nature of farmers' alternatives. For some dairy farmers, the program will serve as an inducement to retire earlier than planned. For others, the only alternative may be foreclosure, that is, lenders may mandate participation in order to partially liquidate debt. For another group of farmers, off-farm employment will represent the best alternative use of operator labor.

Most potential participants in WHB, however, will compare potential returns from alternative farming enterprises with potential dairy returns in making their decision. The most likely alternatives to dairying for WHB participants who elect to continue farming are cattle, hogs, wheat, feed grains, and soybeans. Many dairy farmers already possess the machinery, equipment, and know-how to produce these commodities. Capital and special skill requirements will limit consideration of other minor crop and livestock enterprises.

The short-run outlook for livestock and major field crops is not particularly encouraging. Returns for all of the likely alternative commodities will average less in 1985 than 1984, based on current USDA forecasts (charts 1 and 2). Comparing forecast 1985 prices with 1980-1984 averages (chart 3), only hog prices are at comparable levels; for the other commodities, 1985 prices are expected to be from 9 to 22 percent lower.

Commodity prices relative to costs of production show dairy farming as the most profitable (or least unprofitable) of major farm production enterprises (chart 4). Both fed cattle and hogs showed out-of-pocket

losses (cash costs greater than revenue) based on USDA data comparing forecast 1985 returns to 1984 production costs. The other commodities had positive price-cash cost spreads. Comparing prices to the full cost of production (including costs of capital replacement, market rates of return on assets, and opportunity labor costs), all enterprises, including milk, exhibited losses. However, milk returns covered a greater proportion of full production costs than for the other commodities. This suggests that farming alternatives to dairying will be viewed by potential WHB participants as relatively unattractive, at least in the near term.

Over the life of the WHB program, federal grain policy and international grain market fundamentals must be examined to assess the outlook for dairying alternatives. Grain prices dictate the profitablilty of grain farming alternatives, livestock alternatives, and dairy farming. The U.S. substantially expanded grain production in the late 1970's in response to profitable export opportunities. Since peaking in 1981, U.S. agricultural export value has fallen nearly 20 percent. Grain production was geared to previous export trends, leaving large, price-depressing surpluses when the trend reversed direction.

The 1985 farm bill continues deficiency payment, set-aside, and loan programs for grains, and initiates a direct payment program for soybeans. These provisions, along with the marketing loan concept, virtually assure that grain prices will remain low as long as the bill's provisions are in effect.

The international picture supports a long-run outlook of continued low grain prices. Total world grain trade is declining at the same time that world grain production is increasing. This means that more countries are successfully pursuing self-sufficiency goals. Land- and water-related

constraints to expanded world grain production are being broken down with new technology. Technology has also increased yields, allowing former importers to become exporters.

It is clear that the U.S. will not regain grain export markets lost in the 1980's. A recent and continuing decline in the value of the dollar will help, but other countries are neither willing nor obligated to reduce grain production. Some with high debt loads will be attempting to expand foreign grain sales to increase export earnings for loan payments. And the EEC does not appear ready to terminate its export subsidies.

The outlook for low grain prices over the 3-5 year WHB participation period will limit sign-up for two reasons; (1) the profitability of dairy alternatives will remain low, and (2) milk-feed price ratios will consequently remain relatively high. However, dairy farmers with large program acreage bases may find the 1985 farm bill grain target prices attractive. And many farmers may be anticipating post-farm bill paid land diversion programs for grains that will improve the attractiveness of idling land, thus improving the profitability of WHB participation.

WHB participation will vary by region because of varying profitability of dairy farming. Based on 1984 costs and returns, dairy farm returns above cash costs were positive in all regions surveyed by USDA (chart 5). Returns above full costs, however, were negative in the corn belt and practically nil in the Appalachian region. The Pacific region demonstrated returns above full costs more than double any other region. This suggests that long-run profitability conditions for dairying will be strongest in the Far West, especially if grain prices remain depressed, limiting WHB participation in that region. Participation will be larger in those parts of the U.S. with lower profitability.

Dairy Outlook

To predict the dairy price and market situation for 1986-1990, a nine-region simulation model of milk consumption and production in the continental United States was utilized. The nine regions are:

(1) Northeast
(2) Corn Belt
(3) Lake States
(4) Southeast
(5) South Central
(6) Plains
(7) Mountain
(8) Southwest
(9) Northwest

Initially, baseline data for the twenty quarters beginning with the first quarter of 1986 were specified. The baseline data rest heavily on the following premise. In the absence of supply controls, the propensity to supply milk at low costs will drive producer milk prices down to a direct relationship with the support price. Subsequent simulations then measure the impact of program actions against the baseline.

The initial simulation was the 12 billion pound whole herd buy-out. Implementation of this program over six quarters required that in the second quarter of 1986, 571 million pounds of milk production (supply curve shifts left), and in each succeeding quarter, additional 571 million pound increments were removed to achieve the 12 billion pound goal. For analysis purposes, the herd buy-outs occurred in only three regions, with 40 percent o the reduction occurring each in the Northeast and Lake States regions, and 20 percent occurring in the Corn Belt.

Results of this simulation on an annual national basis are reported in the following table. Estimates for 1986 through 1990 for (1) the

manufacturing milk price, (2) all milk wholesale price, (3) total production, (4) manufacturing use, (5) fluid use, (6) Class I price, (7) CCC purchases, and (8) cash farm receipts are advanced. Two columns of estimates are reported. The column identified as Baseline has all of its estimates generated from assumed manufacturing milk prices and all milk wholesale prices related to price support levels specified in the 1985 Farm Act. The column identified as Predicted reflects the herd buy-out simulation results.

Results from any simulation analysis probably raise as many questions as answers. There are inconsistencies in various series that ultimately go back to the assumed supply and demand elasticity coefficients and to other baseline assumptions such as the milk-feed price ratio.* However, we are comfortable with the overall output that this simulation generates and particularly with the producer prices which represent the essential information required for bid calculations.

The average annual manufacturing milk price for 1986-1990 is predicted to be $10.84 per cwt. (3.5 percent BF).

The average annual "All Milk Wholesale" price for 1986-1990 is predicted to be $11.86 per cwt. (milk of average 3.67 percent BF test).

NOTE: All of the output including the two price series noted above are available for all 20 of the quarters and all 9 of the regions in the Appendix including retail cheese prices, retail fluid milk prices, and CCC net expenditures.

*The milk-feed price ratio was gradually tightened from its present 1.50 plus level to 1.27 in 1990. We will provide an alternative run with a more favorable milk-feed price ratio shortly.

	Baseline	Predicted
Manufacturing Milk Price (3.5%BF)		
1986	$11.11 per cwt.	$11.11 per cwt.
1987	10.81	10.84
1988	10.32	10.82
1989	9.91	10.75
1990	9.43	10.66
All Milk Wholesale Price		
1986	$12.17	$12.20
1987	11.96	12.10
1988	11.15	11.71
1989	10.75	11.65
1990	10.34	11.65
U.S. Milk Production		
1986	147,541 Mil.Lbs.	144,118 Mil.Lbs.
1987	150,183	138,205
1988	149,643	135,960
1989	148,241	134,563
1990	146,854	133,182
Manufacturing Use		
1986	74,444 Mil.Lbs.	74,429 Mil.Lbs.
1987	80,057	79,959
1988	85,923	83,977
1989	87,947	84,433
1990	89,979	84,440
Fluid Use		
1986	49,545 Mil.Lbs.	49,537 Mil.Lbs.
1987	49,297	49,277
1988	49,055	49,732
1989	48,804	48,224
1990	48,562	47,664
Class I Price (Average, National)		
1986	$13.85 per cwt.	$13.86 per cwt.
1987	13.56	13.60
1988	13.06	13.54
1989	12.65	13.48
1990	12.17	13.43
CCC Purchases		
1986	23,552 Mil.Lbs.	20,152 Mil.Lbs.
1987	20,829	8,970
1988	14,665	3,251
1989	11,490	1,906
1990	8,313	1,078
Cash Receipts From Dairy		
1986	$17,804 Mil.Lbs.	$17,434 Mil.Lbs
1987	17,838	16,577
1988	16,591	15,801
1989	15,849	15,564
1990	15,116	15,408

Suggested Factors That May Be Used In Adjusting Expense Items and Receipts Items To Reflect an Average Expected Year During The Five-Year Termination

In calculating the bid per cwt. for possible participation in the Herd Buyout Program, it is necessary to make specific changes in expense items and receipts items on the worksheets to finally measure the changes in net income that a dairy farmer will incur by participating as compared to not participating. The change in each expense item or receipts item is a function of the quantity of that item multiplied by the price of that item. A dairy farmer can make an accurate estimate of how much of a quantity change will occur in the on-coming period on his/her dairy farm with respect to expenses and receipts. However, projected changes in prices of these items are more difficult to resolve. Therefore, we are suggesting that the following factors may be used to reflect the probable price adjustments that may be recognized as an annual average through the five-year period of the buy-out requirement. Depending on the particular item, these suggested factors reflect inflation considerations, market forces, and/or 1985 Farm Bill provisions. The two columns of factors that are advanced directly reflect the items specified in the Cornell Dairy Farm Business Summary and Farm 1040 Schedule F. Dairy farmers using other procedures for recording expenses and receipts should be able to select the appropriate adjustment factors from these columns.

Suggested Price-Cost Adjustment Factor For Average Expected

	Cornell Summary
Hired Labor	1.1
Dairy Grain and Concentrate	1.0
Dairy Roughage	0.9
Other Livestock	1.1
Machinery Hire, Rent & Lease	1.1
Machinery Repairs and Parts	1.15
Auto Expense (Farm Share)	1.1
Fuel, Oil, and Grease	1.0
Purchased Livestock	1.0
Breeding	1.1
Veterinary and Medicine	1.05
Milk Marketing	1.05
Cattle Lease	1.0
Other Livestock Expense	1.0
Fertilizer and Lime	1.1
Seeds and Plants	1.05
Spray, other crop expense	1.1
Land, Building, Fence Repair	1.05
Taxes	1.1
Insurance	1.05
Rent and Lease	1.0
Telephone (Farm Share)	1.1
Electricity (Farm Share)	1.1
Interest Paid	1.0
Miscellaneous	1.1
Depreciation	---
Machinery	1.0
Buildings	1.0

	Farm 1040 Schedule F
Breeding	1.0
Chemicals	1.1
Conservation Expenses	1.05
Depreciation-M,B,L	1.0
Employee Benefits	1.1
Feed Purchased	1.0
Fertilizers and Lime	1.05
Freight and Trucking	1.1
Gasoline, Fuel, and Oil	1.0
Insurance	1.05
Hired Labor	1.1
Land Clearing	1.1
Machine Hire	1.1
Mortgage Interest	1.0
Other Interest	1.0
Pension & Profit Sharing	1.1
Rent of Farm, Pasture	1.0
Repairs, Maintenance	1.15
Seeds, Plants	1.05
Storage, Warehousing	1.05
Supplies Purchased	1.1
Taxes	1.1
Utilities	1.1
Veterinary Fees, Medicine	1.05
Other Expenses	1.1

Impact on Receipts (Cornell Dairy Farm Business Summary)

Milk - (See price outlook discussion)	
Dairy Cattle	0.9
Dairy Calves	0.9
Other Livestock	1.1
Corn Grain	0.9
Corn Silage	0.9
Hay	1.0
Wheat	0.9
Oats	0.9
Other	1.0
Land Rented to Others	0.95
House Rental	1.1
Custom Work	1.0

Nonfarm Income

Salaries and Wages	1.05
Retirement Income	1.05
Interest Income	1.0
Income From Investments	1.0
Other	1.05
Miscellaneous	1.05

Chart 1: Crop Price Trends 1980-85

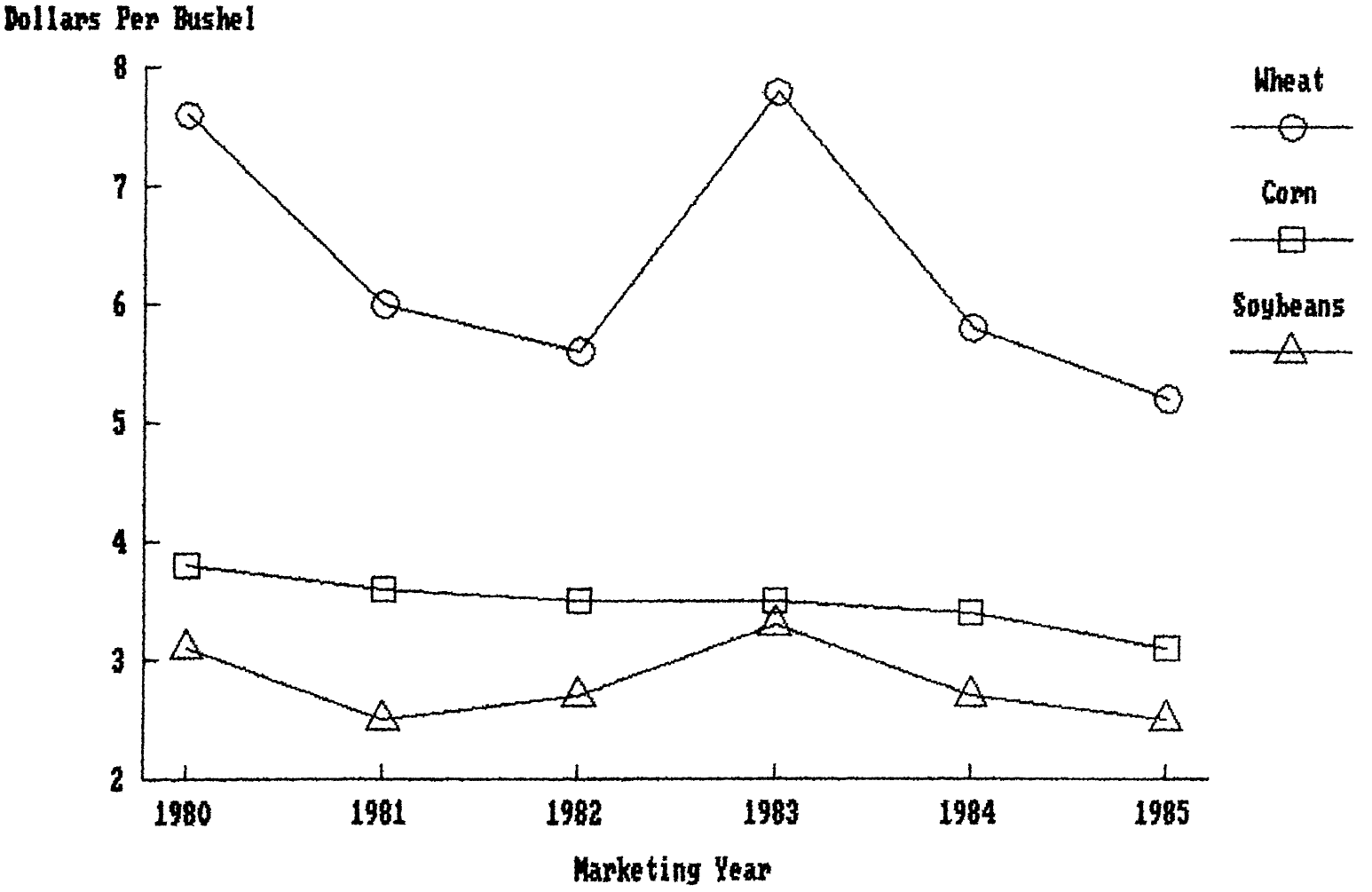

Chart 2: Livestock Price Trends 1980-85

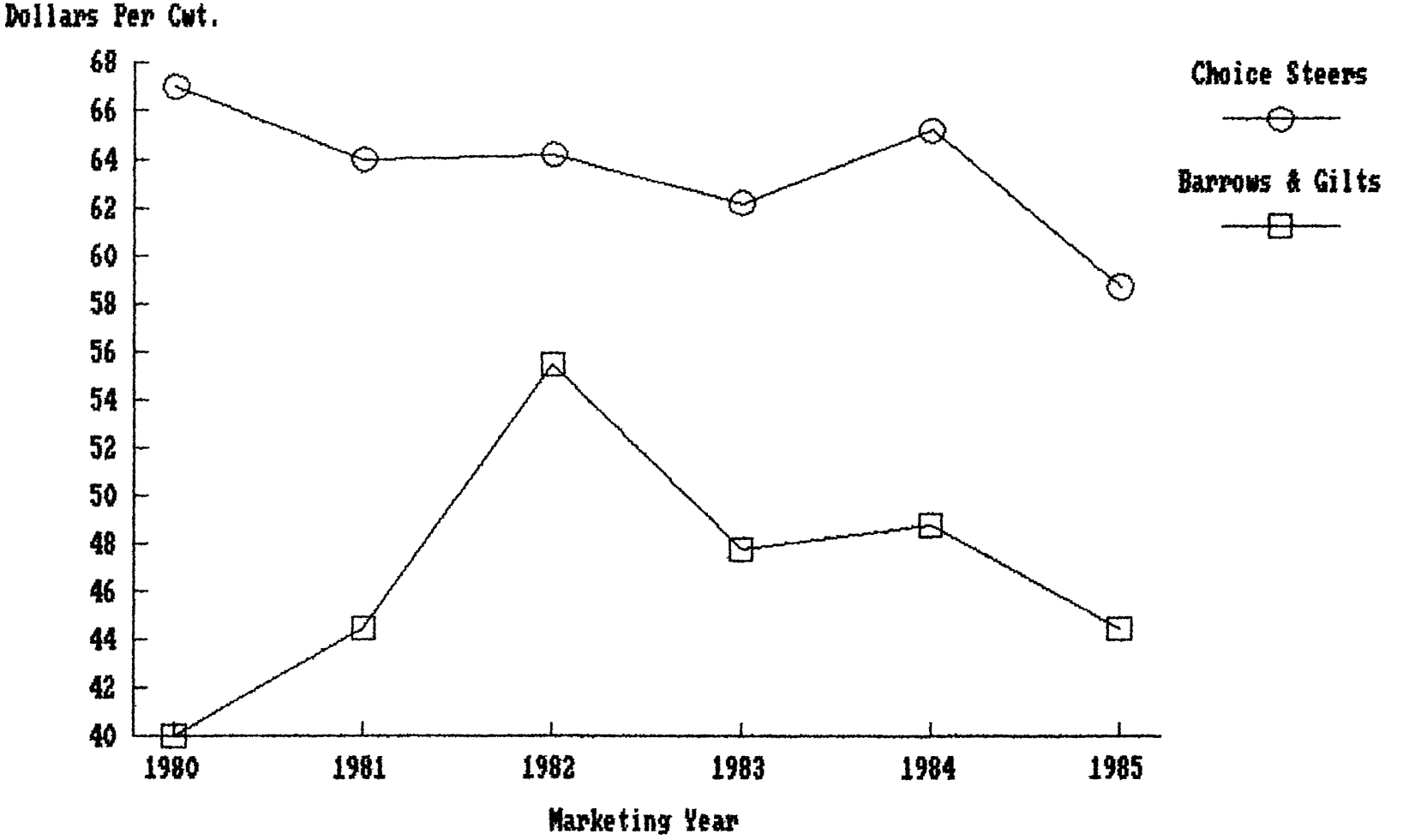

Chart 3: Commodity Prices
1985 as a % of 1980-84 Ave.

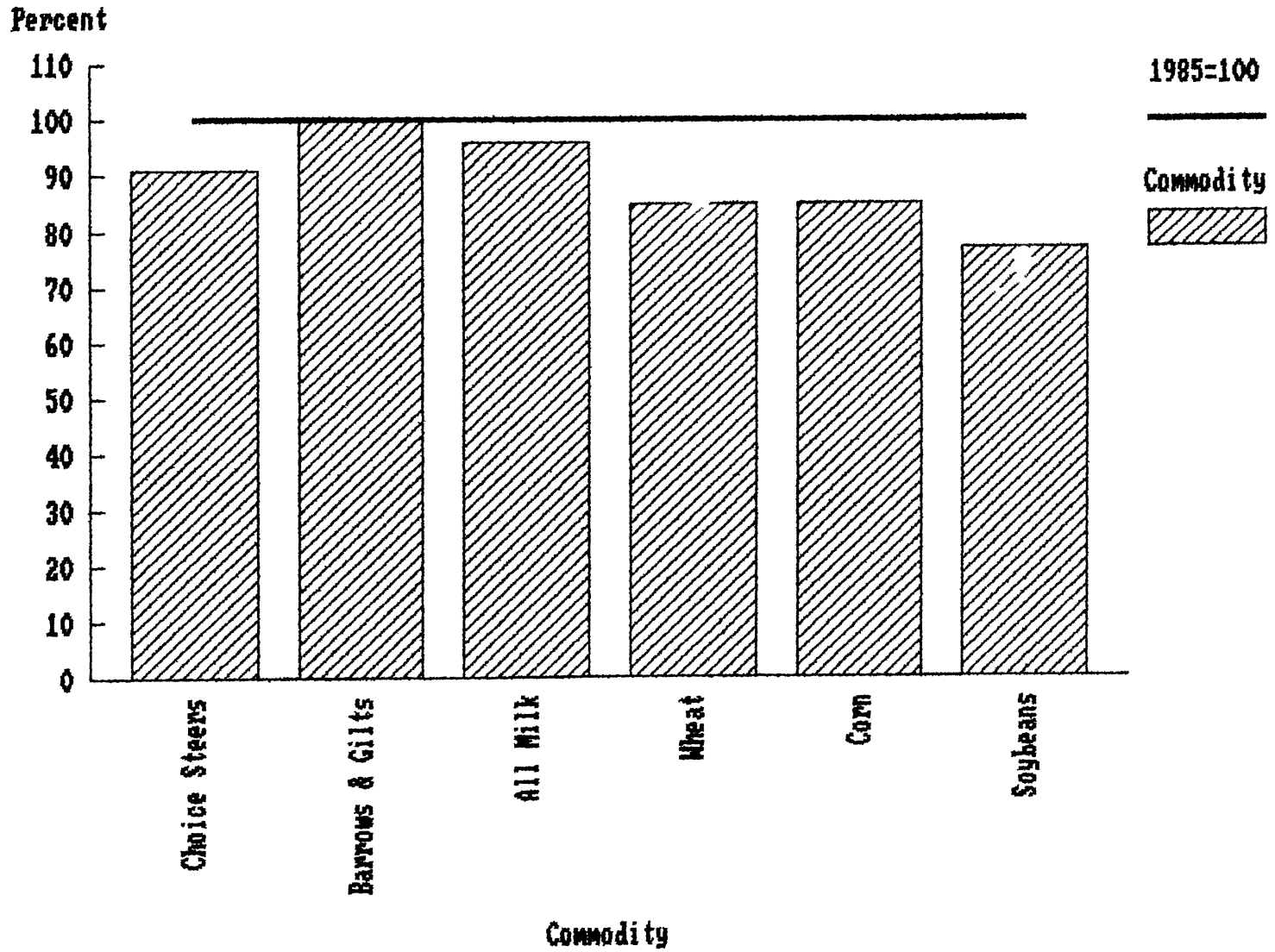

Chart 4: Commodity Prices Relative to Costs 1985

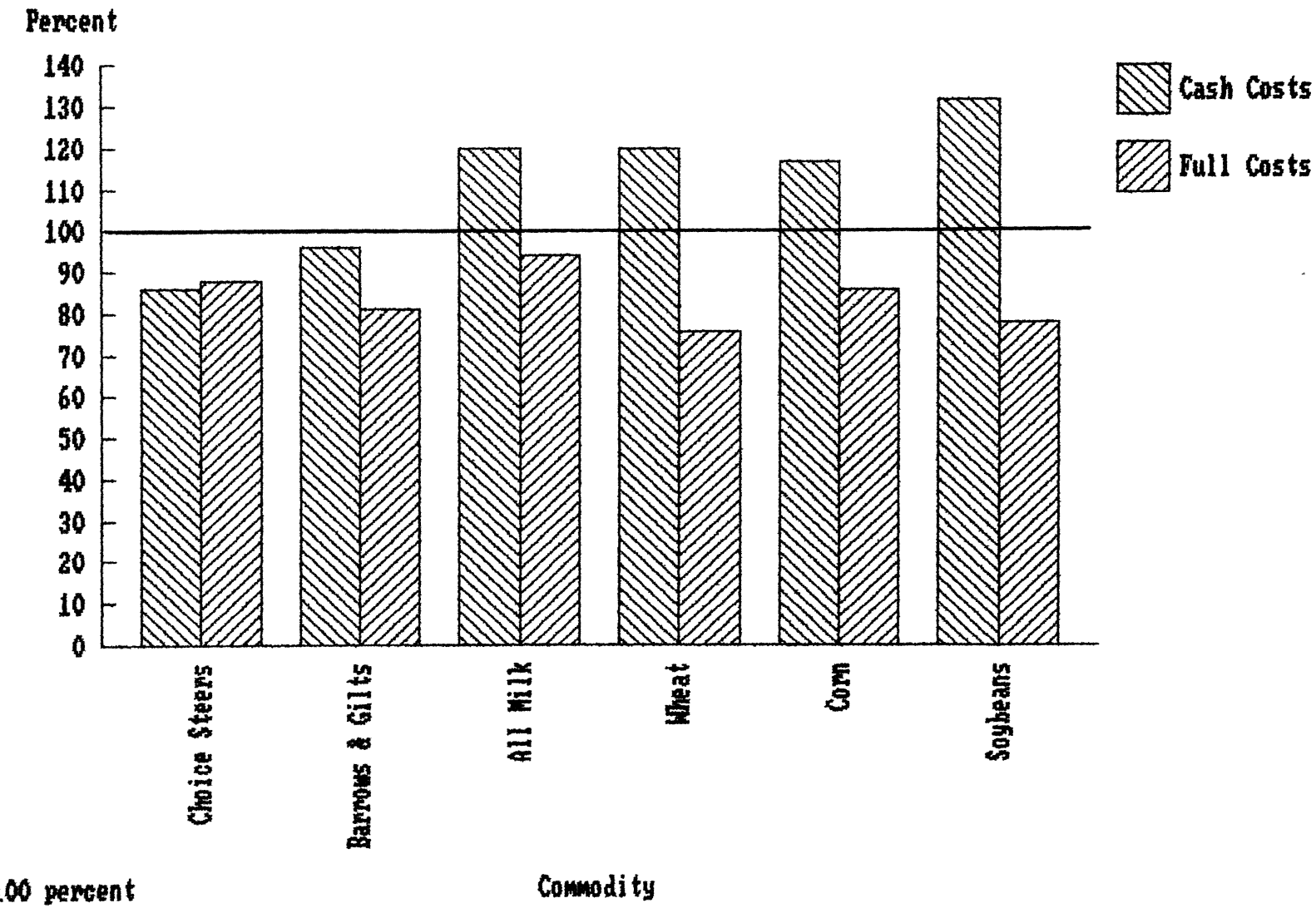

Chart 5: Profitability of Milk Production Return Over Cash and Full Costs, 1984